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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,662	05/14/2001	Kazuyuki Shigeta	35.C15364	6820

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NEW YORK, NY 10112

EXAMINER

ABDULSELAM, ABBAS I

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 10/06/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/853,662

Applicant(s)

KAZUYUKI

Examiner

Abbas I Abdulsalam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-39 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bloom et al. (USPN 6219015) in view of Miyashita et al. (USPN 6115084) and Handschy et al. (USPN 6317112).

Regarding claims 1, 4-6, 21, 24-26 and 32-39, Bloom teaches a color display system including the use of modulators, which helps generate images that can be viewed directly or projected onto a viewing screen. Bloom also teaches a modulator (30) that can operate to modulate incident light and also teaches diffraction of red, green and blue spectral illumination from a white light (169). See col. 3, lines 28-32, col. 9, lines 10-41 and Fig (8-9). However, Bloom does not disclose modulating light according to input display data, time sequentially switching the generated light beams and illuminating the space modulation means with the light beam. Bloom also does not disclose a white light illumination period per each interval between illumination periods for light beam having different colors, Miyashita on the other hand discloses

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a projection type display system including the use of three liquid crystal light valves for modulating colored light beams based on a given input video signals (col. 4, lines 49-55).

Miyashita further teaches a projection type display system including an optical system in which the distance from the white light beam emitter for uniform illumination optical device to emitters (944, 945, 946) of the color light beams are equal. See col. 11, lines 52-56 and Fig. 19.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Bloom's multicolor optical image-generation system to adapt Miyashita's optical system as shown in Fig. 19. One would have been motivated in view of the suggestion in Miyashita that the optical system including the use of emitters (944, 945, 946) and light valves (925R, 925G, 925B) as configured in Fig. 19 equivalently provide the desired white light illumination period with respect to different colors, and modulation of light according to input data. The use of light valves and emitters helps the process of enlarging and projecting color light image onto a screen as taught by Miyashita.

Bloom has been discusses above. However, Bloom does not disclose, "time sequentially switching the generated light beams and illuminating the space modulation means with the light beam." Handschy teaches a switching arrangement that switches the modulating arrangement between different states in a controlled way during the period. Handschy further teaches illumination arrangement for selectively and alternately directing light of different colors. See the abstract.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Bloom's multicolor image generating system to adapt Handschy's

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switching and illumination arrangements. One would have been motivated in view of the suggestion in Handschy that the switching and illumination arrangements are functionally equivalent and satisfy the desired switching of light beams, and illuminating the “space modulation means”. The use of switching and illumination arrangements helps a system for producing spatially modulated color light as taught by Handschy.

Regarding claims 4 and 33, in addition to what has been discussed above, Handschy teaches the illumination output for spatial light modulator pixel controlled by a five sub-frame arrangement using the time domain scheme and brightness domain scheme See col. 25, lines 58-67, col. 26, lines 1-18 and Fig 16(A-C). In addition Handschy teaches the plurality of sub-frames of unequal length time and the time periods of the first plurality of sub-frames, if arranged in order of timewise, increase by a factor of two. It would have been obvious by utilizing a graph 16(A-C), and by setting the number of sub-frames at 2, one would obtain the desired signal period whose length is twice the period of “the illumination light transition”.

Regarding claims 5-6, 25-26, 34-35 and 38-39, in addition to what has been discussed above, Bloom teaches the use of GLV in combination with other gratings (GLVs) where separate but contiguous red green and blue modulation unit of GLVs each with a grating period designed to diffract the appropriate color into a single optical system. See Fig. 7. Furthermore, Bloom discloses an optical system employing an array (160) of pixel unit (161) each including three sub pixel grating components (162, 164, 166) having different grating periods selected to diffract red green and blue spectral illumination from a white light. See Fig. 21. It would have obvious that the configurations of sub pixel components are the same as the desired configurations in a group containing boundary periods.

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Regarding claims 2-3, and 22-23, Handschy teaches the illumination arrangement directing light of different colors into the modulating arrangement during predetermined sub-periods of the period. See the abstract.

Regarding claims 7 and 27, Bloom teaches a visual display system by exploiting the white light to isolate the three primary color components of each pixel in a color display system. See Fig 21

Regarding claims 8, 10 and 19-20, Handschy teaches the illumination output of spatial light modulator expressed in illuminator output versus time as shown in Fig. (16A-C).

Regarding claims 9 and 11-14, Bloom teaches the use of a modulator (30) including liquid crystal modulators, DMD-type devices and other types of modulators. See Fig (8-9)., col. 2, lines 17-22, col. 3, lines 10-19.

Regarding claims 15-18, Handschy teaches the use of a color filter positioned within the illumination arrangement (16) such that it filters the light produced by the tungsten halogen bulb allowing light of a restricted range of wavelengths to pass into the spatial light modulator at any given time. See col. 7, lines 15-27, Fig. 1 and Fig. 2.

Regarding claims 28-31, Miyashita teaches a projection type display including a memory where at least video signals for pixels of one scanning lines are written and stored. See col. 4, lines 49-64.

Conclusion

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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4. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Abbas Abdulsalam** whose telephone number is **(703) 305-8591**. The examiner can normally be reached on Monday through Friday (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard Hjerpe**, can be reached at **(703) 305-4709**.

Any response to this action should be mailed to:

Commissioner of patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand delivered responses should be brought to Crystal Park II, Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

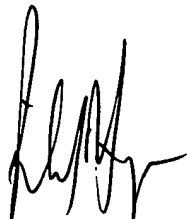
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology center 2600 customer Service office whose telephone number is (703) 306-0377.

Abbas Abdulsalam

Examiner

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September, 23, 2003



RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600